# Spanning the Gap



U.S. Dept. of the Interior National Park Service

ART AND ARCHITECTURE

### **A Twist of Lime**

### by Park Ranger Rab Cika T

In this case, the *twist* is the word itself... not the stuff of Southern pies or a garnish on a margarita, but rather the chemical compound *CaO*, the whitishgray solid...the stuff that farmers used to use for everything from whitewash to fertilizer. *Lime*.

Farmers in the 19th century widely adopted the habit of applying lime to their fields to "sweeten" the soil; actually, it was neutralizing the acidity and, increasing fertility. The industry grew and lime-kilns sprung up across countryside. Lime could be burned by either stacking and capping in an open field, or placed in a one-firing-only set kiln, or, in a continuously-fed draw kiln which would keep producing as long as it was supplied with stone and fuel.

From the late 18th into the 20th centuries, farmers in this region obtained lime by burning limestone, or by purchasing the lime from a from a "lime burner" who operated a commercial kiln.

It was off-season work, autumn work. In the cool clear nights of the fall's harvest moon, the lime-kiln on the hillside cast its eerie blue-orange glow and made shadows dance. The lime rocks burning at 2000 degrees popped and cracked, and sometimes exploded, infusing the whole proceeding with devilish tones that inspired writers and made children shiver, and not just because of the temperature. The kiln built into the side of a hill

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## The Lime Kiln at John Turn Farm



The kiln is built into a slope, and the top of the kiln is reached by a roadway. (NPS sketch by Rab Cika)



The lime kiln at John Turn Farm on River Road in Pennsylvania. The final yards of the road to the top are at the left.

seemed not so much a tool of the operation, as it was an entrance to the Dark Regions, a place where goblins and devils dwelt. A place where Hawthorne sent Ethan Brand for a final sardonic explanation of the "unpardonable sin." And the lime-burner, shadowy lonely figure, stands as solitary sentinel over this ominous inferno.

A stone, firebrick-lined structure perhaps 18 feet high and 10 feet across, the kiln was locatedon a hillside so wagons could deliver the brick-sized pieces of limestone and the coal or wood for fuel, and could load them in layers from the top -- three wheelbarrows of coal for each foot-thick layer of stone. Too much fuel would burn the stone to cinders; too little and it wouldn't be properly oxidized for *slaking*. Ignited from below, in four to six days the lime would work its way from top to bottom, where it was drawn out and wetted down, thus changing from *calcined* (quick) lime (calcium carbonate) to *slaked* lime (calcium hydrate), the powdery substance which could then be applied to fields.

The watering step was necessary due to quick lime's peculiar habit of spontaneous combustion. More than one early farmer was surprised by his wagonload of unslaked lime bursting into flame after a sudden shower. This probably added to people's beliefs in lime's phantasmic properties. (And if you were an old-time theater performer, you might have been bathed in an especially distinct and bright light that the stagehand turned in your direction -- the *limelight*, a combination of gases directed over a cylinder of lime and ignited.)

Pennsylvania has been a leading producer and consumer of lime, and its countryside is still dotted with the dilapidated, overgrown ruins of this once active enterprise. In the recreation area, we have an especially intact example of a typical draw-kiln about 1 mile south of headquarters on River Road, on the land that was once the *John Turn Farm*.

With a little imagination, you can hear the hissing and cracking lime. And maybe see Brand's ghostly



Alternate layers of fuel (brown) and limestone (gray) are piled into the kiln from the top, and the processed lime is drawn out by hand at the bottom. (NPS sketch by Rab Cika)



Face of the lime kiln at John Turn Farm.



The mouth of the lime kiln.

figure silhouetted above the glowing throat of that infernal furnace, conducting the last of his earthly business...

That is the story of limestone and lime, the allpurpose stuff of rural agricultural America, and how it was manufactured -- the substance without which the farmer could not do. He built with it, coated his walls with it, grew good crops in it...

...And maybe he did mix it in his pie.



The top opening of the lime kiln (now partially filled) seen from the access road.

#### Lime kilns in the park

#### John Turn Farm PA (Photos above, right)

The well-preserved lime kiln is on River Road PA, near the parking area for the John Turn Trailhead of McDade Trail. Traveling south on River Road, the parking area is 1.1 miles south of headquarters, on the left (east) side of River Road; traveling north, the parking area is 1.2 miles north of Zion Church Road, on the right (east) side of the road. At the parking area there is also an outdoor (wayside) exhibit explaining the history of the land that was once John Turn Farm. Walk to the right leaving the parking area, and north alongside the field about 100 yards. In late fall and winter you can see the kiln easily, facing you at the edge of the woods, across on the west side of the road. (Watch for traffic!) From spring until the leaves fall, it is more difficult to pick out. You can walk up the access road to the top of the kiln.

#### Zion Church Road

This moderately well preserved kiln is on the north side of Zion Church Road *before* the intersection with Mosiers Knob Road on the left. Zion Church Road is a dirt road not recommended for regular sedans. Take River Road to the entrance to Zion Church Road and park at the pull off on the east side of River Road(on your left if travelling south.) Walk up Zion Church Road about 1/2 mile to the kiln on your right. This road is lightly trafficked and a pleasant hike past a church and a country cemetery. *Watch for traffic nonetheless*, as vehicles like jeeps and SUVs do come through. At the intersection with Mosiers Knob Road, you can continue straight ahead 1 mile to reach **Hidden Lake**.

#### Hialeah Picnic Area

This kiln in ruins is right on River Road at the one-way exit drive from Hialeah Picnic Area PA. You can park at the parking area for McDade Trail at the far north end of Hialeah and walk approximately 1/4 to the kiln. *(Watch for traffic!* This area is busy in good weather.)

#### STAY SAFE!

- Watch for traffic.
- Do NOT climb on or enter a kiln in any way.

# Additional Lime Kilns along River Road PA



Lime kiln, Zion Church Road near Michael and Mosiers Roads PA.



Lime kiln on River Road at the exit from Hialeah Picnic Area.